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Jeff Allen  
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**VETERINARY SPECIALTY CERTIFICATION:  
ANALYZING THE VALUE OF CERTIFICATION THROUGH THE  
AMERICAN BOARD OF VETERINARY PRACTITIONERS**

**Jeff Allen**

Graduate Capstone  
Martin School of Public Policy and Administration  
Summer 2013

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## **EXECUTIVE SUMMARY**

When it comes to professional certification a number of potential benefits can be cited by the organizations that offer them. Self-improvement, recognition by peers, public benefit and enhanced career opportunities are just a few of the frequently mentioned values associated with certification programs. This study was conducted to identify the primary benefits of certification for the American Board of Veterinary Practitioners (ABVP) by recording and analyzing the perceived value of ABVP certification within the veterinary community. An online survey was developed to collect data from ABVP certified and non-certified veterinarians, relying heavily on the Perceived Value of Certification Tool (PVCT).

The survey was completed by 415 veterinarians who provided opinions on the value of ABVP certification with regard to improved income, enhanced ability and other benefits. Overall, respondents agreed with 17 of the 18 PVCT statements; however, ABVP certified diplomates were more likely to agree with them than non-dipomates. Factor analysis determined that statements with higher intrinsic value received more agreement than those with extrinsic value. Regressiona analysis revealed the intrinsic factor to have a strong predictive correlation to obtaining ABVP certification. Other variables had low or negative correlation.

This study supports the argument that ABVP is indeed fulfilling its stated mission to advance the quality of veterinary medicine by instilling veterinarians with greater knowledge and confidence. However, these benefits are largely internal and less likely to attract veterinarians primarily concerned with external rewards.

## **PROBLEM STATEMENT**

In today's competitive, knowledge-based workforce, specialized skill development offers the opportunity to excel in one's chosen profession. When traditional education alone does not confer upon its recipients the full range of ability or recognition that may be required in highly-focused fields or subfields, many professionals seek out an additional measure of achievement in the form of a specialty certification (Institute for Credentialing Excellence).

Within the veterinary community, certification is widespread but far from ubiquitous; although veterinarians often seek out advanced training after medical school in the form of internships and residencies, these common precursors to board certification are not mandatory as they are in human medicine. For those who do wish to identify themselves as specialists, there are many recognized non-governmental organizations that provide a variety of veterinary certifications (AAVMC 1-2). Among them is the American Board of Veterinary Practitioners (ABVP), which offers certification based on one's expertise in certain species groups (AVMA, "Veterinary Specialists - 2012").

As is the case with most other veterinary certifying bodies, earning and then maintaining an ABVP certification is a lengthy process that is not without a significant commitment in both time and money, leaving some to wonder if the benefits of certification are worth the sacrifice. Consequently, a fundamental question exists for ABVP, one shared by many professional certifying boards, veterinary or otherwise, and that speaks to the very core of their existence—what is the true value of certification?

For ABVP, the intended value of the certifying process can be gleaned from their mission statement: "The American Board of Veterinary Practitioners advances the quality of veterinary medicine through certification of veterinarians who demonstrate excellence in species-oriented

clinical practice” (*Applicant Handbook* 4). While ABVP’s mission is an admirable one, the evidence to support or oppose the position that they are actually succeeding in their stated reason for being is at present inadequate. Perhaps the only area where research has demonstrated any correlation between certification and veterinary excellence is in regard to income.

Financial data collected by the American Veterinary Medical Association (AVMA) show that veterinarians certified by ABVP and other veterinary boards do typically earn more than their non-certified peers (*Report on Veterinary Compensation* 21). Unfortunately, even if one assumes a strong correlation between the income (y) and certification (x) variables, it does not settle the question of relevance for ABVP. Any economic gains enjoyed by specialists, while encouraging, are simply not the principal goal of the organization. Consider the following from ABVP’s *Applicant Handbook* about the intent of certification which is even more to the point than its mission statement: “The main purpose is self-improvement through demonstrating specialist-level skills and knowledge” (4). This gives us a better starting point than income if we truly want to understand the value and impact of certification; however, it is only starting point. Declarations like this, with their appeal to personal growth and achievement, are common among certifying entities, in part because they truly embody the beliefs to which these groups adhere to with such veracity, and in part because they make for great marketing copy. Yet neither the nobility of intent nor the poetry of words can prove that a mission statement is being fulfilled. Only research can uncover the true value of certification.

What would be the result of this research? Veterinarians would have greater access to information and could make better decisions about certification based on their personal motivations. For example, documented correlations between ABVP certification and firmly held

values would not only be a key decision-making factor in favor of pursuing certification, it would also serve as a motivational force throughout the difficult certifying process.

For ABVP, detailed evidence that they are indeed fulfilling their mission would provide an internal sense of validation while confirming their importance to the broader veterinary community. However, just as it helps to know the true benefits of certification, so to is there merit in discovering any lack thereof. If, for instance, ABVP's certification process ultimately results in no measurable positive outcomes, they will have effectively failed at their mission. Such a revelation would likely result in needed reforms that might not otherwise have been implemented.

An attempt to collect and analyze the relevant data for these purposes forms the basis this research.

## **BACKGROUND & LITERATURE REVIEW**

### ***Veterinary Certification***

The AVMA reports that approximately 97,000 veterinarians are practicing in the United States today. About two-thirds work in private practice, typically as either an associate or practice owner; the rest are employed by public or corporate entities. Just over 75% of those in private practice work either predominantly or exclusively with pets, also known as companion animals. Those who fall outside of this category are mostly large animal practitioners, working with either horses or food animals, such as cows, pigs and poultry. Among the veterinarians employed in the public or corporate arenas, the largest contingent—about 42%—work for universities. The rest are chiefly divided among various government agencies and private industries (“U.S. Veterinarians — 2012”).

This snapshot of veterinary medicine demonstrates the broad and complex nature of the profession. Much like in human medicine, where the quaint image of the town doctor who makes house calls has faded away in favor of the highly specialized field we know today, so too has the traditional concept of the family veterinarian evolved into a myriad of highly advanced fields and subfields. From the neighborhood clinic, where the burgeoning popularity of exotic pets is creating a demand for niche services, to the Centers for Disease Control, where avian and swine influenza strains keep researchers hard at work, the increasingly specialized skill sets required of the veterinary community are evident (Bureau of Labor Statistics, “Occupational Outlook”).

In response to the expanding depth and breadth of veterinary science, a number of certifying organizations have been founded to aid in developing specialized knowledge and ability (AVMA, “AVMA Guidelines”). Being certified is not equivalent to being licensed. As is the case with many professions, veterinarians are required to obtain a license to practice in their state or other governmental jurisdiction. Licensure is a form of public protection designed to confirm that a practitioner has the appropriate education and has met the minimum standards of competency to be employed in a given profession. For veterinarians, this typically involves fairly perfunctory steps such as providing the appropriate state licensing board with evidence of having graduated from an accredited college of veterinary medicine as well as scores from the North American Veterinary Licensing Exam (AAVMC 5). Veterinary specialty certification, however, is not bestowed by government entities but by nonprofit boards and colleges (not to be confused with colleges that award degrees). While the conditions for becoming a specialist vary among these organizations, they all require veterinarians to obtain some form of additional training or experience (American Veterinary Medical Association, “AVMA Guidelines”) as well as pass a certifying examination (ABVS, “Policies & Procedures” 4-5).



The origins of veterinary specialty certification date back to 1950, when the first two organizations petitioned the AVMA for recognition. The following year, the original guidelines for the approval of veterinary specialty organizations were put in place, opening the door for the formal recognition and advancement of numerous fields and subfields of veterinary science. In 1959, the AVMA established what is today known as the American Board of Veterinary Specialties (ABVS) to facilitate the creation of new specialties and provide oversight for existing ones (ABVS, “Policies & Procedures” 1). According to AVMA nomenclature, an approved certifying board is known as a Recognized Veterinary Specialty Organization, or RVSO, while the specialty itself is called a Recognized Veterinary Specialty, or RVS. There are currently 22 RVSOs in the United States offering veterinary specialties in 40 categories—from anesthesia to zoological medicine (AAVMC 2).

Founded in 1978, the American Board of Veterinary Practitioners is a well established RVSO that focuses on species-based care of the whole patient. While most RVSOs award specialties in specific medical disciplines, such as surgery or internal medicine, ABVP was developed for veterinarians who demonstrate advanced ability and knowledge across the broad spectrum of clinical practice, yet focused on a single species group. ABVP began with three RVS categories—Companion Mammal, Equine and Food Animal—but has since expanded to cover the following specialties: Avian, Equine, Beef Cattle, Feline, Canine & Feline, Food Animal, Dairy, Exotic Companion Mammal, Reptile & Amphibian, and Swine Health Management (ABVP, *Applicant Handbook* 4). Within these ten categories, ABVP boasts 900 active diplomates (as certified veterinary specialists are called) making it the fourth largest of the 22 RVSOs (AVMA, “Veterinary Specialists – 2012”).

To become a diplomate of ABVP, a veterinarian must demonstrate expertise in their species category by completing an extensive credentialing and examination process. Applicants must submit a credentials packet that includes, among other documents, an official application, curriculum vitae, record of continuing education and two case study manuscripts that document their advanced clinical ability (ABVP, *Applicant Handbook* 13). A team of Credentials Committee members evaluate the application materials and grade the manuscripts. Once all portions of the packet have been accepted, the applicant may register to sit for a two-part certifying examination that takes place over the course of a day and a half. If a candidate passes both sections, certification is awarded (25).

Not surprisingly, the pursuit of ABVP certification requires a significant time commitment. A thorough credentials packet can take over a year to complete as aspiring applicants pursue the necessary continuing education hours and develop their case reports. Credentials are then reviewed only once a year, beginning in January (8). The examination is also given annually, typically in October. Applicants have three opportunities to have their credentials accepted (8) and then three more chances to pass the examination (24). Therefore, even at its most efficient, ABVP certification is a year-long process and could possibly take as long as six, if it is achieved at all. ABVP records indicate that between 2008 and 2012 only 48.5% of the 375 credentials applications were approved (*2012 ABVP RVSO Annual Report* 8). For those distinguished enough to sit for the exam, the road ahead is slightly more favorable. The percent of examinees who pass both sections of the exam every year has averaged 75.5% since 2008 (9). Unlike the credentialing process, which rather decisively filters out the least suitable candidates in the first year, passing rates for the exam do not deviate much based on whether candidates are retaking the exam or sitting it for the first time.

All of this also comes at a financial cost for the applicant. The application fee is \$400 and the examination fee is \$525 (26). Many veterinarians also hire proofreaders and editors to review their case reports. When an interesting case comes along that an applicant thinks would be ideal for a manuscript, many have chosen to pay for lab work and other procedures out of their own pocket to ensure the case is fully documented (32). Once a candidate becomes certified, they must pay an annual fee of \$250 to maintain that certification (26).

### ***Specialization vs. General Practice***

Of the roughly 97,000 licensed veterinarians in the United States, only about 11,000 can claim to have a certified specialty recognized by the American Veterinary Medical Association (AVMA, “Veterinary Specialists - 2012”). The long and rigorous process to become a board-certified diplomate of ABVP reflects the fact that so few veterinarians achieve a specialty certification. However, a number of variables influence the decision whether or not to specialize. The economic climate for veterinary medicine and its various subfields is no doubt among the most salient considerations.

The professional outlook for veterinarians has been subject to considerable research and speculation over the years as analysts have attempted to predict the job market for veterinary medicine and reconcile it against both the strong interest in veterinary medicine among aspiring health professionals and the comparatively lower wages veterinarians receive in the medical field relative to their training. From a scholarly standpoint, one of the most thorough works on the subject was published in 1997 by Malcolm Getz, whose research did not look optimistically on the prospects for current and future veterinarians. In *Veterinary Medicine in Economic Transition*, Getz argued that veterinarians were becoming increasingly oversupplied in the market, due, in part, to state government subsidies of veterinary schools, a very positive

perception of veterinarians by society, and an increasing interest in the field from women (153). In his forecasting model, Getz predicted the demand for veterinarians would grow by modest 888 a year while the actual number would increase by 1,336 (33-35). The results, he argued, would be a downward pressure on salaries and fewer employment opportunities—all in an industry where salaries for veterinarians had already demonstrated little change since the 1970s in real terms (3). Getz effectively summarized his conclusions by stating, “careers in veterinary medicine are unlikely to become more attractive economically over the next decade” (13).

Despite these dire predictions, market conditions for veterinarians have demonstrated remarkable progress. In the 15 years since the publication of Getz’s research, annual income gains for veterinarians have outpaced inflation. The AVMA’s *Report on Veterinary Compensation* lists the mean full-time income for veterinarians in private practice at \$118,726 in 2011 (11) compared to \$65,208 in 1997 (35). For corporate and publically employed veterinarians, mean 2011 income was \$132,205 (11) versus \$76,275 in 1997 (36). In terms of 1997 dollars, this represents real increases of \$19,506 and \$18,057, respectively (12). Interestingly, this growth has occurred while the supply of new veterinarians has continued to expand even more than expected. Getz estimated that the oversupply of veterinarians would peak in 2005, resulting in a period of rapidly decelerated growth until 2015 when the veterinary population would reach a steady state of about 80,000 (35). However, AVMA estimates for 2012 put the number of active veterinarians at 97,111 (AVMA, “U.S. Veterinarians — 2012”).

What accounts for the surprisingly strong demand for veterinary services? While traditional companion animals like dogs and cats continue to remain popular, the pet industry has experienced a surge of interest in specialty and exotic pets. As a result, the population of turtles, snakes and other once unlikely household companions has increased considerably in recent years

(AVMA, *U.S Pet Ownership* 46). In addition to the broadening diversity of animals in American homes, pet owners themselves also appear to go undergoing a change. AVMA research shows that 63.2% of pet owners consider their pets a part of their family, up considerably from 49.7% just five years earlier (7).

Another development with significant affecting on the industry is the rapid advancement of many areas of veterinary science. Ailments that are commonly treated in humans but that typically required euthanasia for animals are now faced with greater parity as new technologies, surgical procedures, and pharmaceutical options are being developed. Veterinary medicine has also experienced increased demands in fields related to public health and biomedical research. Concerns regarding avian influenza and other zoonotic diseases as well as the ongoing threat of bioterrorism will likely continue to fuel the need for veterinarians with training in these areas (Bureau of Labor Statistics, "Job Outlook").

In light of these recent developments in the broader veterinary community, one should have no trouble seeing how these events have influenced the development of veterinary specialties. The advances in the breadth and depth of veterinary science, when combined with a more informed and, at times, emotionally invested consumer base, create opportunities for specialists to occupy and develop a number of new market niches. Dr. Larry R. Corry, former president of the AVMA, put it this way, "As the human-animal bond continues to grow, veterinarians are being asked by pet owners to provide increasingly advanced treatments, and this is driving them into specialties like internal medicine, neurology and oncology" (AVMA, New AVMA Market Data).

With regard to ABVP specifically, there exists a number opportunities for certified individuals to have a competitive advantage over other practitioners. For example, while equine

hospitals have been around for decades, a number of veterinarians have responded to consumers' growing demand and willingness to pay for specialized care by establishing clinics that focus on feline or exotic animal medicine. Not surprisingly, many of these clinics are staffed by ABVP diplomates certified in those species groups (Lightfoot).

Despite a market environment that seems near perfectly suited to produce veterinary specialists by the thousands, the vast majority of veterinarians never pursue a specialty (AVMA, "Veterinary Specialists - 2012"). This may have to do to the fact that most RVSOs require veterinarians to engage in additional training through a residency or internship, usually for two or three years after graduation. However, these positions usually pay far less than what a new veterinarian can typically make—a significant disincentive for a population with sizable student loans to pay off. Approximately 89% of veterinary students report having debt at the time of graduation with the average amount owed being in excess of \$150,000. With an mean starting salary of about \$65,500 a year for veterinarians not pursuing specialties the income to debt ratio is imposing enough; for residents and interns in advance study programs, who start at around \$29,000, it may seem nearly insurmountable (Shepherd and Pikel 892). Many veterinarians may feel as if they have no choice but to eschew the long-term benefits of certification in favor of a bigger paycheck today.

Despite the additional work and income restrictions imposed on would-be specialists, salary data collected by the AVMA suggests that the long-term financial benefits of board certification are significant. In 2011, veterinary specialists who worked in private practice earned a mean annual income of \$179,920 compared to \$113,474 for those who were not board certified. Though not as pronounced, specialists also enjoyed a significant income advantage

among the ranks of corporate and publically employed veterinarians—\$150,512 versus \$112,390 for non-specialists (*AVMA Report on Veterinary Compensation* 103, 105).

Given the significant disparity in mean incomes, the correlation between salary and board certification would appear to be strong. However, the exact statistical relationship of these two variables is unknown. A review of veterinary literature reveals no attempts to determine if the correlation is spurious and we are left to ponder the classic causality dilemma, which in this case manifests itself as something like, “Does certification itself lead to higher salaries or is it simply a trait shared by many high achieving veterinarians whose better than average income can be better explained by other variables?”

While salary data for specialists is at least documented, a consideration of other potential benefits of certification appears altogether absent from the scholarly record. This seems a curious omission in light of the fact that RVSOs were not established to raise the incomes of veterinarians but rather to make them better practitioners in their chosen field. A candid evaluation of whether veterinary specialists and non-specialists alike believe these groups are succeeding in their mission would seem to yield an important contribution to veterinary specialty medicine. Do ABVP diplomates, for example, think the certification process made them a better veterinarian or is certification merely a recognition of one’s existing ability? For that matter, is certification even an accurate measure of ability? Ideally, this would be measured by collecting and comparing key variables such as outcomes of medical procedures, malpractice rates, and disciplinary actions of certified and non-certified veterinarians. While these methods are beyond the scope and ability of this research project, a comprehensive survey of perceived values associated with certification is likely to yield useful information.

### ***Perceived Value of Certification***

One means to evaluate this question is to collect information about the perceived value of certification. The concept of perceived value refers to the basic perceptions held by a particular professional group or subgroup about the significance of certification in that professional field. An examination of scholarly literature reveals that the perceived value of voluntary professional board certification has received particular attention in the nursing field.

In 1999, the Competency and Credentialing Institute (CCI), then called the Certification Board Perioperative Nursing, began a long-term research initiative that would shed significant light on the value of specialty certification in the nursing industry. The CCI's original goal was to provide research-based evidence about the value of the two kinds of certifications it provided for operating room nurses. To that end, content analysis of focus group data yielded a series of value statements which were then applied to a five-point Likert-type scale (strongly agree, agree, disagree, strongly disagree, no opinion). Following Institutional Review Board (IRB) approval at Duquesne University and a pilot study to work out the kinks, the Perceived Value of Certification Tool was finalized and copyrighted (Byrne, Valentine and Carter 826-827).

The first large scale analysis using the PVCT was conducted in 2003 when it was distributed to nurses certified by the CCI. The results from almost 1,400 respondents showed that certification held significant personal value to perioperative nurses, with the highest scores being recorded for statements associated with intrinsic values like personal accomplishment and satisfaction. Factor analysis also revealed two other ways that respondents perceived the value of certification. These factors were identified as personal value, recognition by others and professional practice. Internal consistency reliability was .924 for this study (Gaberson, Schroeter and Killen 274-275).



**Table 1.****PERCEIVED VALUE OF CERTIFICATION TOOL (PVCT) ©**

Directions: Below are statements that relate to perceived values of certification. Please indicate the degree to which you agree or disagree with the statements by circling SA for strongly agree, A for agree, D for disagree, SD for strongly disagree, or NO for no opinion.

	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion
Validates specialized knowledge	SA	A	D	SD	NO
Indicates level of clinical competence	SA	A	D	SD	NO
Indicates attainment of a practice standard	SA	A	D	SD	NO
Enhances professional credibility	SA	A	D	SD	NO
Promotes recognition from peers	SA	A	D	SD	NO
Promotes recognition from other health professionals	SA	A	D	SD	NO
Promotes recognition from employers	SA	A	D	SD	NO
Increases consumer confidence	SA	A	D	SD	NO
Enhances feeling of personal accomplishment	SA	A	D	SD	NO
Enhances personal confidence in clinical abilities	SA	A	D	SD	NO
Provides personal satisfaction	SA	A	D	SD	NO
Professional challenge	SA	A	D	SD	NO
Enhances professional autonomy	SA	A	D	SD	NO
Indicates professional growth	SA	A	D	SD	NO
Provides evidence of professional commitment	SA	A	D	SD	NO
Provides evidence of accountability	SA	A	D	SD	NO
Increases marketability	SA	A	D	SD	NO
Increases salary	SA	A	D	SD	NO

© Certification Board Perioperative Nursing (CBPN), 2002. Reproduction without authors' express written consent is not permitted. Permission to use the PVCT may be obtained from CBPN, 2170 South Parker Road, Suite 295, Denver, CO 80231; e-mail [scarter@certboard.org](mailto:scarter@certboard.org).

Since this initial study, the PCVT has been utilized to research the perceived value of certification for a number of nursing specialty certifying organizations. In 2006, the original research was repeated but expanded to include perioperative nurses who were not certified by CCI. The intent was to identify similarities and differences regarding the perceived value of CCI certification from operating room nurses who were certificants, non-certificants and administrators (Sechrist and Berlin 242). Although all three groups agreed with most of the PVCT statements, the findings showed that nurses who were certified by CCI perceived a much greater value in perioperative certification than those who were not. Factor analysis and internal consistency reliability yielded similar results to the original study in 2003 (244-245).

In 2007, twenty nursing specialty organizations participated in a groundbreaking study spearheaded by the American Board of Nursing Specialties (ABNS). The PVCT was completed by 11,427 certified nurses, non-certified nurses and nurse managers to assess the perceived value of nursing certification in general (Niebuhr and Biel 176). As with previous research, all sample groups agreed with most of the PVCT statements, although to varying degrees, and did so along a similar pattern of intrinsic values over extrinsic ones (178-179).

Collectively, these and other studies have revealed a remarkably consistent pattern among nurses regarding the perceived value of nursing specialty certification. The information has also proved to be of great value to ABNS and its member organizations as they continue to develop new strategies to more effectively fulfill their mission statements. Other organizations have also benefitted. The CCI makes the copyrighted PVCT available to researchers through a streamlined application process. As a result, numerous small-scale studies involving graduate students, multiple sclerosis certified specialists and other groups continue to utilize the PVCT (Competency & Credentialing Institute). However, no history of its use in the field of veterinary medicine is evident.

## **RESEARCH DESIGN**

So the question remains—does ABVP certification advance veterinary medicine? And if so, what values are most closely associated with the fulfillment of that objective? We already know that veterinary specialists tend to have higher incomes than the general veterinary population. However, even if a causal relationship were established, it would provide only a hint that ABVP is achieving its mission. To provide a more comprehensive analysis of the organization's effect on the veterinary field, I plan to use survey methodology to collect and analyze the opinions of veterinarians on this subject.

I have been granted permission from the CCI to incorporate the 18 question Perceived Value of Certification Tool into my survey. This tool has been shown to have excellent validity and reliability in capturing attitudes about certification from nurses (Haskins, Hnatiuk and Yoder 72). I plan to duplicate that effort (albeit on a smaller scale) in the veterinary field. Each question references a different value statement related to professional certification in the health industry. Respondents will produce ordinal level data using a Likert scale to record their level of agreement or disagreement with each statement. By capturing the true value that ABVP certification has in the veterinary community, the PVCT questions serve as a collective surrogate for the broader question of whether ABVP is succeeding in its mission.

Six demographic questions were also included in the survey to screen for non-veterinarians, identify gender, and classify respondents' veterinary experience in general as well as with veterinary specialties. The data generated from these questions will produce several variables that can be analyzed for correlation against the PVCT items. Two primary sample groups of veterinarians will be evaluated—those who are certified by ABVP and those who are not—to determine if statistically significant differences in perceived value exist between them and their relevant subgroups.

An initial sample of 1,197 veterinarians was provided by ABVP. This included a list of 931 current ABVP diplomates as well as a small sample of other veterinarians. A second sample of 2,017 veterinarians with email addresses was purchased from a professional mailing list provider. Survey responses were collected through SurveyMonkey, an online survey provider. Veterinarians were contacted by email with a request to participate in the survey, which could be accessed online through a link provided in the email. The link was uniquely tied to each recipient's email address so the survey could only be completed once per person. To maximize

response rates, the call for participants was emailed directly from the ABVP executive director. In her message, she summarized the goals of my research and indicated that it had been approved by ABVP's leadership. The survey request was distributed on July 12, 2013.

## **FINDINGS**

Of the 3,214 contacts in the sample population, 415 (13%) completed the survey request. ABVP certified veterinarians had 249 completions for a 27% rate of return while 166 non-ABVP certified veterinarians completed the survey at a return rate of 7%. Respondents were 58% male and 42% female. The mean level of experience was in the 20–25 years interval (see Appendix 1). Respondents with an ABVP certification were more likely to be male and to have more years of experience than those without.

ABVP diplomates generally recorded slightly higher levels of agreement than their peers; however, the pattern of agreement was remarkably consistent between them. Both major sample groups agreed with 17 of the 18 value statements and their respective mean scores ranked the PVCT items in similar order.

Factor analysis is a method of estimating how a number of related measures can be combined into a meaningful index of some important explanatory power in a statistical analysis. The statements in the Perceived Value of Certification Tool were divided into two sets of measures in Table 3, extrinsic and intrinsic factors. Applying factor analysis to both measures resulted in one linear index in each case which accounted for a large part of the variance and had high internal reliability, i.e. they correlate highly by Cronbach's alpha, which is the standard measure of internal consistency of a set of measures. For extrinsic factors, 60% of the variance is accounted for by one factor, while for intrinsic factors, 49% of the variance is accounted for by

one factor. Cronbach's alpha is 0.87 for the extrinsic and 0.90 for the intrinsic; those are high by standard criteria applied in factor analysis.

Respondents strongly agreed with statements that linked certification to internal feelings of personal or professional aptitude. The highest rates of agreement were related to "personal satisfaction", "professional challenge", "professional commitment" and "professional growth", all values that eschew external considerations.

ABVP certification had the weakest perceived correlation to "improving salary", which was the only value to achieve a mean score below 3. "Recognition from other health professionals" had the second lowest mean score, followed by "increasing consumer confidence", "increasing marketability" and "increasing personal autonomy." These are all categories that reflect highly extrinsic values.

Although a few items were omitted by individual respondents, this was rare and should have no effect on the analysis.

The significance of intrinsic considerations as the primary factor is evident in the following regression models. The first regression model predicts for the two primary sample groups—veterinarians who hold an ABVP certification and veterinarians who do not. The independent t test demonstrates a significant correlation to the factor of intrinsic value. Veterinarians appear to be highly likely to pursue ABVP certification if their focus is on achieving internal rewards related to self-improvement. By contrast, those who maintain a preference for external rewards related to the extrinsic values factor are statistically unlikely to seek out ABVP certification. There are possibly some parallels between this phenomenon and the motivations demonstrated by those in the veterinary community as a whole. Veterinarians are required to obtain educational and experiential training similar to doctors in human medicine;

however, they do so knowing they will likely receive fewer external rewards than their counterparts, particularly in income. If intrinsic factors are what drive most people to become veterinarians it seems logical that it would also drive the desire to obtain a veterinary specialty certification.

<b>Table 2. Ranked Value Statements</b>			
<b>Variable</b>	<b>Obs.</b>	<b>Mean</b>	<b>Standard Deviation</b>
Enhances feelings of personal accomplishment	410	4.62	0.603
Professional challenge	410	4.6	0.634
Provides personal satisfaction	410	4.56	0.69
Indicates professional commitment	409	4.46	0.785
Indicate professional growth	410	4.35	0.779
Enhances professional credibility	411	4.3	0.873
Validates specialized knowledge	410	4.28	0.769
Enhances personal confidence in clinical abilities	409	4.28	0.84
Indicates attainment of practice standard	411	4.22	0.848
Indicates level of clinical competence	411	4.06	0.953
Promotes recognition from peers	409	4.01	1.034
Provides evidence of accountability	409	3.87	1.083
Promotes recognition from employers	411	3.81	1.106
Enhances personal autonomy	409	3.72	1.13
Increases marketability	409	3.44	1.243
Increases consumer confidence	411	3.35	1.191
Promotes recognition from other health professionals	411	3.19	1.201
Increases salary	408	2.95	1.23

Experience also demonstrates some significance in predicting ABVP certification. For every five years of experience a veterinarian has, the model predicts a 3% increase in the likelihood of certification. The most likely explanation for this is that certification is intended for

high achieving veterinarians and those who do not meet this standard are rather decisively weeded out through the credentialing process. Therefore, the more experience a veterinarian has, the more likely they are to meet this standard. It could also mean that veterinarians, who often begin their professional life with high debt to income ratios, are focused on more immediate financial concerns. Years later, once those concerns are largely alleviated and a stable professional and financial life has been established, a veterinarian can begin thinking about supplementary career considerations such as specialty certification. Or perhaps it simply takes several years for many veterinarians to identify in what subfield their true professional passion lies.

Being female has no statically significant in this model. This is interesting considering the increasing representation of women among veterinarians and the possibility that they might be more or less motivated to obtain certification; there is no apparent effect.

<b>Table 3. Linear regression of ABVP certification</b>				
<b>ABVP Certification</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>t</b>	<b>P&gt; t </b>
Extrinsic factor	-.113	.030	-3.80	<0.001
Intrinsic factor	.250	.029	8.47	<0.001
Female	-.035	.049	-0.72	.472
Experience	.031	.013	2.37	.018
Constant	.462	.083	5.55	<0.001

*Observations* = 390

*F*( 4, 385) = 23.63

*Prob* > *F* < 0.0001

*R-squared* = 0.2012

The dominance of the intrinsic factor in predicting ABVP certification can also be observed in the organization's largest subgroup. As Table 4 indicates, a preference for internal values over external ones significantly improves the likelihood of becoming ABVP certified in Canine & Feline Practice. Once again, the external factor exhibits a significant negative

influence. Being female also does not prove statistically significant in predicting Canine & Feline certification within ABVP.

<b>Table 4. Linear regression of Canine &amp; Feline certification</b>				
<b>Canine &amp; Feline Cert.</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>t</b>	<b>P&gt; t </b>
Extrinsic factor	-.143	.031	-4.60	<.001
Intrinsic factor	.189	.028	6.83	<.001
Female	.045	.049	.91	.362
Experience	.041	.013	3.12	.002
Constant	.151	.079	1.92	.056

*Observations* = 390

*F*( 4, 385) = 17.97

*Prob > F* = <0.0001

*R-squared* = 0.1334

## **DISCUSSION**

### ***Limitations & Further Research***

The perceptions of ABVP diplomates regarding the value of certification appear to be bolstered by the largely corresponding responses of other veterinarians. However, the sample size of non-ABVP certified veterinarians who participated in this study is not large enough to be considered truly representative of the entire veterinary population. Any additional research specifically attempting to analyze the perceptions of non-certified veterinarians related to specialty board certification should include a larger sample.

Another limitation to this research is that it applies only to the certifications offered by the American Board of Veterinary Practitioners. While one could make inferences about how this affects other specialties, it should not be considered a comprehensive study on the perceived value of veterinary certification in general. Further, because this study has not been replicated in other RVSOs, comparative data across multiple specialties is not possible. One recommendation would be for the AVMA could conduct a meta-analysis of all specialties. This would not only determine the cumulative effect of the perceived value of board certification in the veterinary



community, it would allow RVSO's to evaluate their own perceived value relative to peer organizations.

### ***Conclusions***

This study on the perceived value of ABVP certification by certified and non-certified veterinarians indicates high levels of agreement that many of the benefits commonly associated with professional certification are indeed being realized by ABVP diplomates. Factor analysis resulted in the identification of intrinsic values as having a very significant predictive factor on certification. Respondents did not agree that certification improves salaries. In fact, extrinsic factors provided no encouragement for achieving ABVP certification at all.

Having more years of experience also increased the likelihood of becoming certified. Being female did not have a strong correlation. The increasing representation of women in veterinary medicine is not likely to change certification according to these results.

These results provide strong evidence that ABVP is achieving success in its goal to advance the quality of veterinary medicine, primarily by providing certified veterinarians with benefits like greater professional confidence, personal satisfaction, and other intrinsic rewards. Because the perceived values of certification have been shown to be predominately internal, they are less likely to attract veterinarians who are more focused on external rewards. If ABVP wishes, for example, to establish better compensation or industry recognition for its diplomates, it must do more to help make these a reality.

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## APPENDIX A: PERCEIVED VALUE OF ABVP CERTIFICATION SURVEY

1. Are you a licensed veterinarian?

☐

Yes

☐

No

[IF NO, SKIP TO END OF SURVEY]

2. How long have you been practicing veterinary medicine?

☐

Less than 5 years

☐

20 to 24 years

☐

5 to 9 years

☐

25 to 29 years

☐

10 to 14 years

☐

30 to 34 years

☐

15 to 19 years

☐

35 years or more

3. Do you currently hold a specialty certification from the American Board of Veterinary Practitioners?

☐

Yes

☐

No

[IF NO, SKIP TO QUESTION 5]

4. In which ABVP category or categories are you certified?

☐

Avian

☐

Equine

☐

Reptile/Amphibian

☐

Beef Cattle

☐

Exotic Mammal

☐

Swine Health Management

☐

Canine & Feline

☐

Feline

☐

Dairy

☐

Food Animal

5. Do you currently hold a specialty certification from any other Recognized Specialty Organization?

☐

Yes

☐

No

If so, which one(s)? Acronyms are fine:

[IF YES, SKIP TO QUESTION 7]

6. Which of the following best describes your situation regarding board certification?

☒

I have pursued or I am currently pursuing specialty board certification.

☐

I have researched specialty board certification and have seriously considered it.

☐

I have casually considered specialty certification but have not taken steps to learn more.

☐

I have not considered specialty board certification at all.

7. Below are statements that relate to perceived values of certification by the American Board of Veterinary Practitioners. Please indicate the degree to which you agree or disagree with the statements as they relate to ABVP certification by indicating SA for strongly agree, A for agree, D for disagree, SD for strongly disagree and NO for no opinion.

Validates specialized knowledge	SA	A	D	SD	NO
Indicates level of clinical competence	SA	A	D	SD	NO
Indicates attainment of a practice standard	SA	A	D	SD	NO
Enhances professional credibility	SA	A	D	SD	NO
Promotes recognition from peers	SA	A	D	SD	NO
Promotes recognition from other health professionals	SA	A	D	SD	NO
Promotes recognition from employers	SA	A	D	SD	NO
Increases consumer confidence	SA	A	D	SD	NO
Enhances feeling of personal accomplishment	SA	A	D	SD	NO
Enhances personal confidence in clinical abilities	SA	A	D	SD	NO
Provides personal satisfaction	SA	A	D	SD	NO
Professional challenge	SA	A	D	SD	NO
Enhances professional autonomy	SA	A	D	SD	NO
Indicates personal growth	SA	A	D	SD	NO
Provides evidence of professional commitment	SA	A	D	SD	NO
Provides evidence of accountability	SA	A	D	SD	NO
Increases marketability	SA	A	D	SD	NO
Increases salary	SA	A	D	SD	NO

8. What is your gender?



Female



Male



Prefer not to answer